Editorial

Auditory Asymmetry

We are used to thinking of the human body as a fairly symmetric structure. To be sure, we learn early in life that one hand is preferred over the other for certain actions, but our paired eyes, ears, arms, and legs all lead us to an impression of symmetric structure. The first hints of asymmetries in the auditory system came from early studies of dichotic listening. The pioneering work of Doreen Kimura and Brenda Milner, at the Montreal Neurological Institute, set the stage for two decades of research on the apparent right ear advantage for linguistic processing and the apparent left ear advantage for pitch and melody processing. Moreover, for many years, studies of hearing loss induced by gunfire showed greater left ear than right ear loss, but the significance of this asymmetry was long lost in a cloud of strained explanations involving the eye used to aim the weapon. Gradually, we have come to suspect, however, that the left ear is slightly more fragile than the right ear in resisting the effects of acoustic insult.

As physiologic measures of auditory function became more common, it was soon apparent that both the auditory brainstem response and otoacoustic emissions are more robust on the right side than on the left side.

In this issue of JAAA, a group of Australian investigators from the University of Queensland, Tegan Keogh, Joseph Kei, Carlie Driscoll, and Veronica Smyth, have taken the topic one step further by showing that, even in children, distortion-product otoacoustic emissions (DPOAEs) are slightly larger on the right ear. In a sample of 1003 boys and girls in the age range from 5 to 8 years, they showed significantly larger signal-to-noise ratios on the right ear in the 3- to 6-kHz frequency region. Dennis McFadden, of the University of Texas at Austin, has suggested that the interaural asymmetry in otoacoustic emission amplitude may be attributable to greater efferent inhibition of left ear sensitivity, thus raising the possibility that the observed asymmetry at the auditory periphery may be the result of a more central asymmetry in efferent activity. So the plot thickens. We may soon search in vain for anything that is truly symmetric in the auditory system.

The Australian investigators also found that, in the same high-frequency region, the DPOAEs of girls were significantly stronger than the DPOAEs of boys. This is still further evidence of a gender superiority for females, but that is nothing new. My wife reminds me quite frequently.

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Editor-in-Chief

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